

LTI
Powering the

BREAKAWAY

Engineering & Construction Companies



At 183 m height, the Statue of Unity is tallest statue in the world

— Built by L&T



A Larsen & Toubro
Group Company



Hyderabad Metro



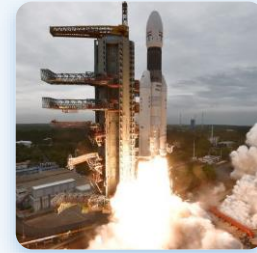
The World's Tallest Statue



Mumbai International Airport



Longest Cross-Country Conveyor



Mission to Mars



FIFA 2022, Al Rayyan Stadium, Qatar

Built on the legacy of a Leading Construction Co

80 years of Engineering Heritage

USD 20 billion technology, engineering, construction and financial services conglomerate

Because differentiated partnerships are built on differentiated solutions

Solid foundation

- Engineering DNA
- Focus on Invest Verticals
- Sales & Marketing excellence
- Talent, Leadership

Built by L&T - The Hyderabad Metro is one of the world's largest projects of its kind involving public-private partnership in the mass transport sector.

Amplified Outcomes

- Operate to Transform
- Data-driven Organizations
- Experience Transformation
- Digitizing the Core

L&T manufactures & supplies sophisticated process plant equipment to clients worldwide.

Investments

- Capabilities
- Acquisitions
- Platforms
- Talent


L&T Tops EPC contractors list in Middle East ranked No.1 EPC contractor for 2019 by Oil & Gas Middle East


What enterprises look for in a trusted partner

The Nabha Power Plant in Punjab, India, is the country's first indigenously built supercritical plant built by L&T on complete EPC basis.





Ability to preempt and proactively manage project risks

 Financial

 Contract

 Technical

 Execution

 Resource



Tight project schedules & stiff penalties: no space for errors, hold-ups or lead times



Manage myriad internal & external stakeholders with intricate interdependencies



Synchronization / Integration of data across multiple specialized applications across the value chain

How we Solve – Intelligent Construction Enterprise

Modular solution that brings together industry expertise, digital capabilities, and our partnership with SAP.

Solution Overview



Templatized Construction Enterprise Processes packaged using SAP Commercial Project Management (CPM) Solution



Architecture-agnostic **Execution Workbench** – capturing eight dimensions of project execution intricacies



360° Visibility into Project Performance via **Project Management Cockpit** and CPM workspace analytics



Quick realization of value from S/4HANA investment with templated rapid deployment



Convergence of planning data from diverse applications into the 'Execution Workbench' for bridging gaps between planning & execution



Integrated Mobile Apps enabling seamless integration of site/yard transactions with Executive level project tracking



Foundation for system of innovation leveraging Leonardo Digital solution platform



Project Paychain to link payment applications of vendors & sub-contractors with contractor's own payment applications

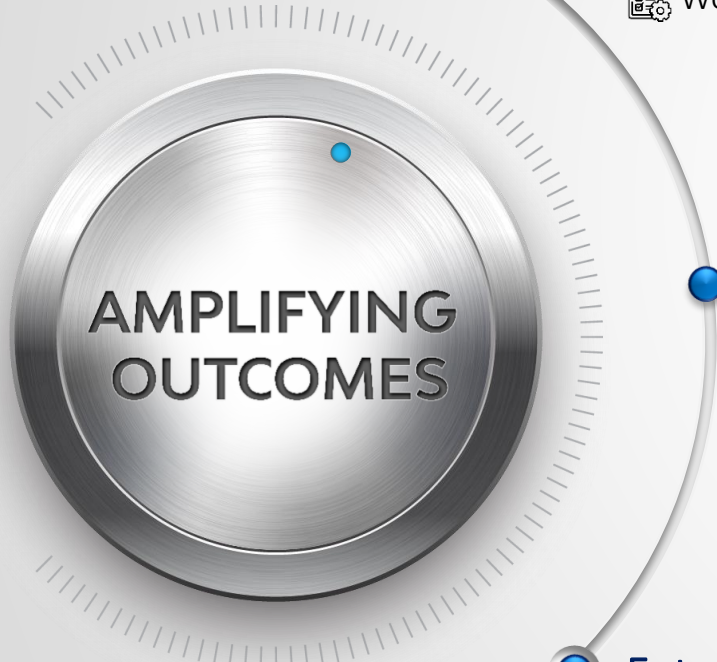
L&T is constructing a world-class stadium in Qatar to host 21,000+ spectators at the 2022 FIFA World Cup.



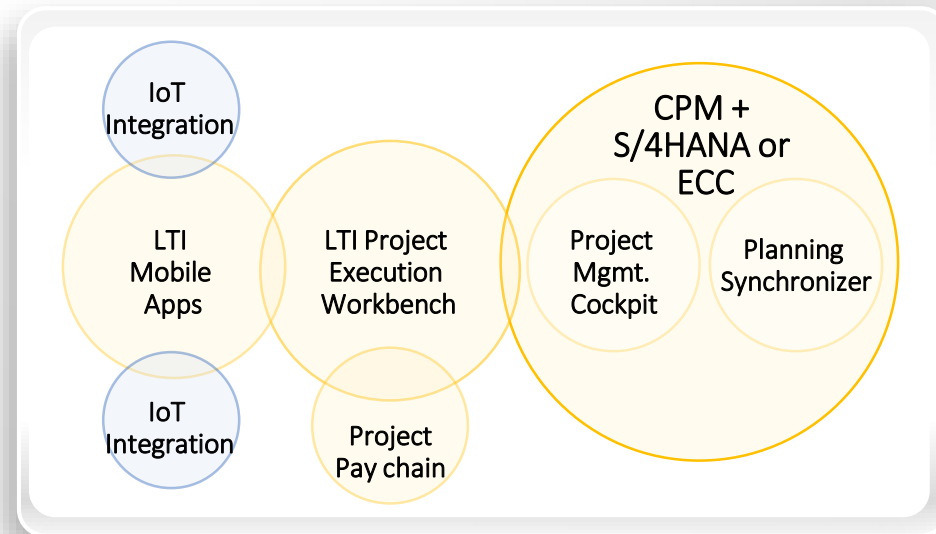
Innovation on the cloud, built-in Seamlessness that see no gaps with SAP

Project Site Operations, Vendors & Sub-contractors

- Work Quantities
- Physical Progress
- Labor & Equipment
- Daily Tasks & Checklist



LTI Implementation Platform



Enterprise Systems

- Designs
- Planning Systems
- Financials
- Procurement
- BOM, Equipment, Documents



Amplified Outcomes



Aligns

with SAP product strategy & roadmap



Provides

rich functionality to track engineering & construction projects



Ensures

fast tracking of S/4 deployment for quicker realization of business benefits



Creates

value for both types of customers – for those with SAP foot-print as well as for those planning to implement SAP



Fits well

into heterogeneous environment typically prevailing in most of the EC&O organizations



Enables

creation of System of Intelligence leveraging Leonardo digital solution platform

Value Enhancement



Bridging gap between planning and execution



Real Time insights



Convergence of data from disparate Systems



Capturing nuances of eight dimension of project execution



Data structure for seamless flow of Data for 360° visibility & automation



225 MW Sikalbaha combined cycle power plant in Bangladesh, built by L&T on turnkey basis



Let's Solve

Atal Setu. Bridge on Mandovi River in Panaji
Goa. It is the third longest cable-stayed
bridge in India. Built by L&T

LTI Execution Workbench

POWERED BY :

- Rich Domain Experience
- SAP S/4HANA and SAP cloud platform innovations

Enterprise Challenges in Project Planning & Execution

L&T has executed critical portions of Arihant, India's first nuclear-powered submarine, viz. design engineering, pressure hull, outer hull & structures, special equipment, outfitting.



Mandatory multi-level & multi-platform activity planning



Need a single integrated platform connecting multiple data sources



Need a single platform to process high granularity, industry-specific data



Conventional solutions need extended data structures to capture intricacies of project execution



No user-friendly platform to process & consolidate entire physical project execution



Project plan progress update needs manual intervention for consolidated view

How we Solve - Execution Workbench



Pre-requisite

Back-end SAP ERP (ECC or S/4HANA)



Solution Construct

- SAP cloud platform
- SAP Fiori/UI5
- SAP S/4HANA Core
- Connector with Oracle Primavera (Quantity & schedule updates)



KPIs Impacted

- Resource Utilization: Equipment & labor productivity
- Schedule performance
- Agility & responsiveness in execution

Solution Overview



Quantity updates, schedule updates, project issues tracking, Inspection plan/results and project documents uploading



Activity checklist



Multiple module interface



Resources, equipment utilization and productivity



Ability to bring all tasks planned & maintained in SAP, Primavera and MS Excel on a single platform



Enables capturing checklist maintained in individual MS-Excel workbooks for a centralized project structure



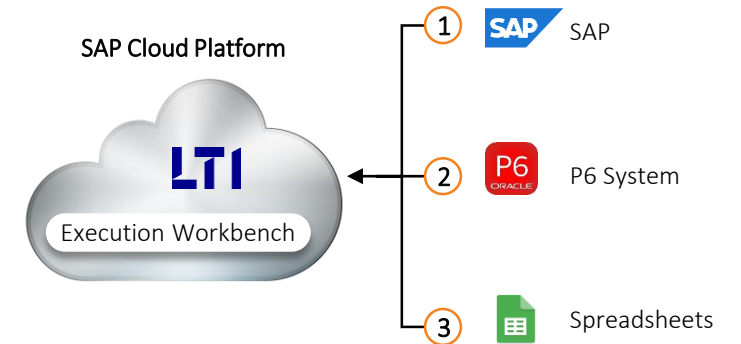
Captures 360 degree view of project activities to high level of granularity, for example:

★ Work quantities, checklists, resource etc.



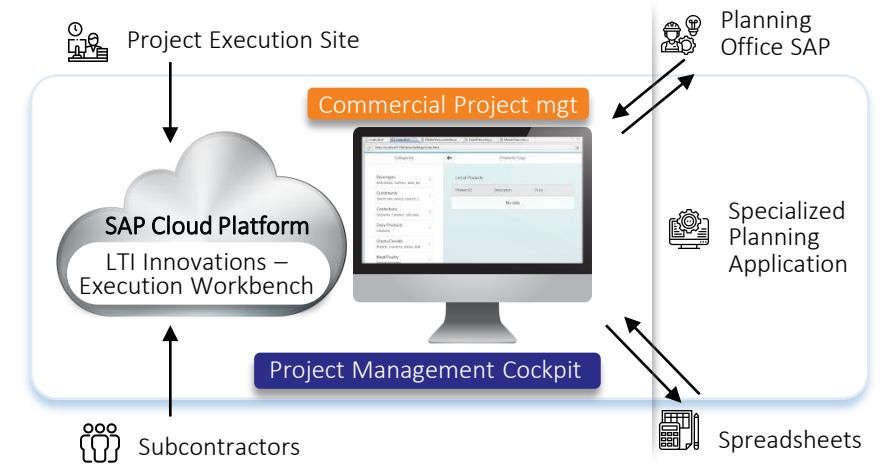
Puts in place comprehensive data structure to connect field operations with planning office

Convergence of Data from Disparate Systems

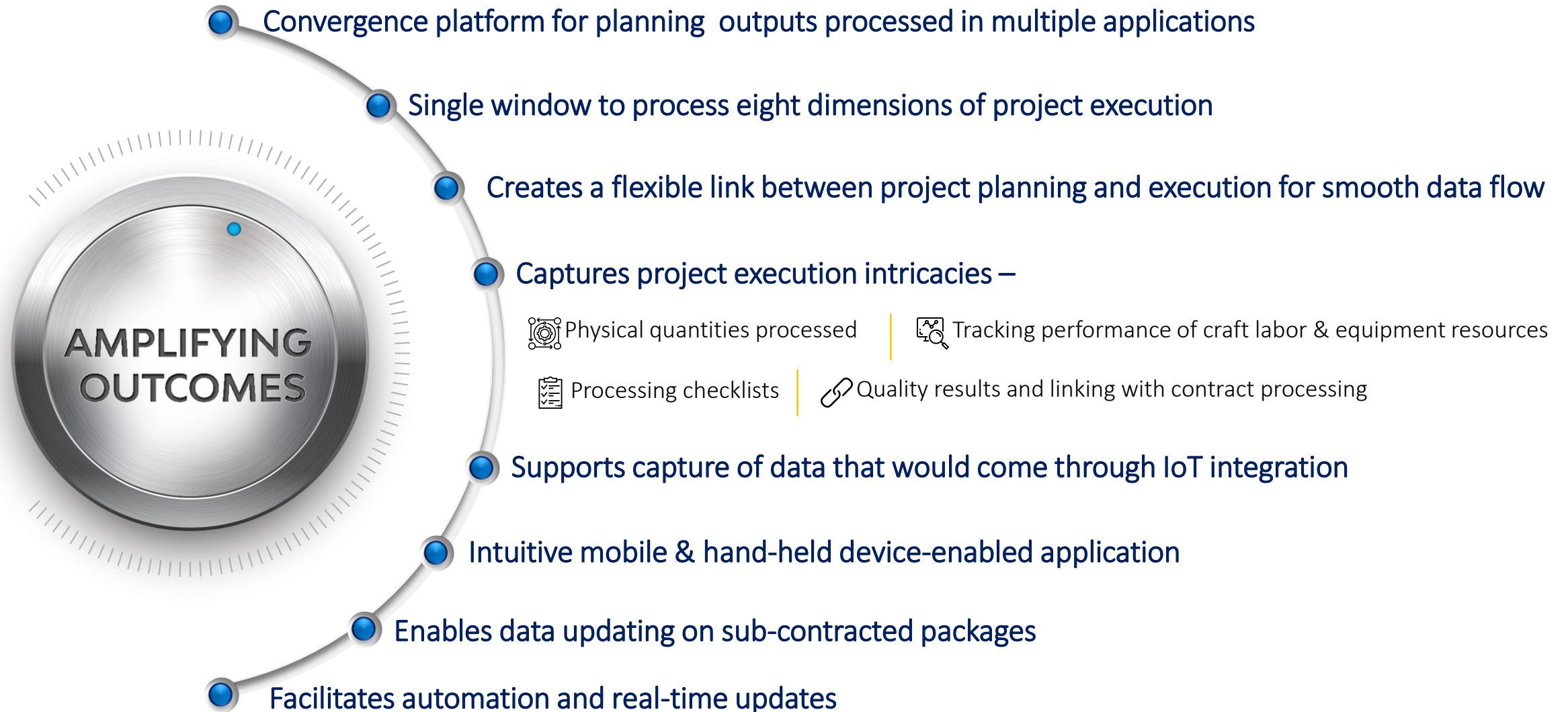


Execution Workbench

Bridging Gap between Planning and Execution



How LTI Execution Workbench Amplifies Outcomes





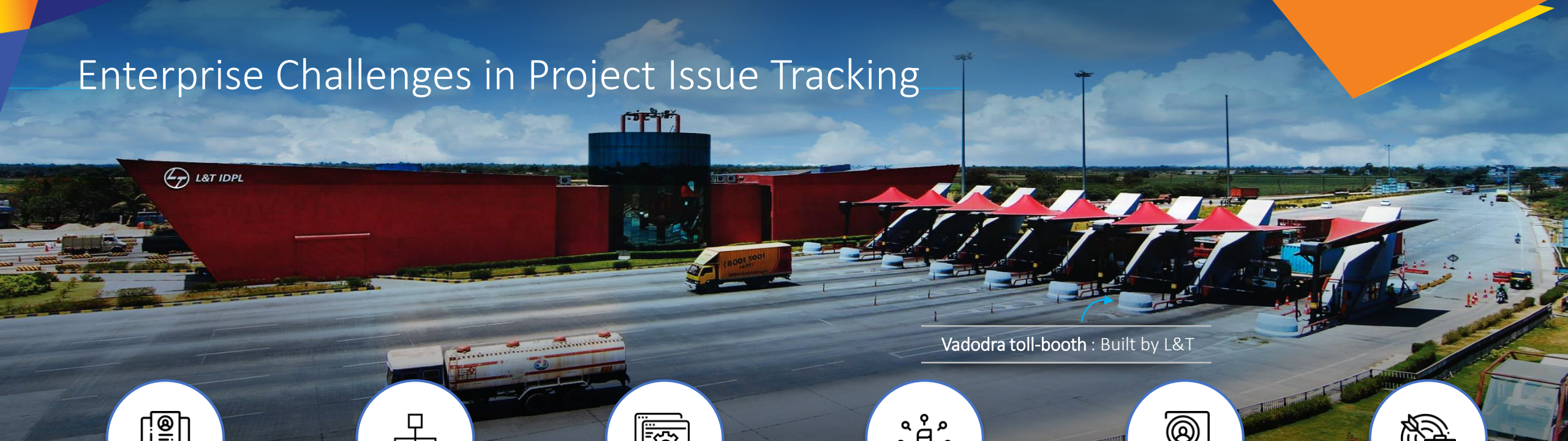
L&T is building the Kakrapar Nuclear Power Plant in Gujarat –We have expertise in both technologies – Pressurized Heavy Water and Light Water.

LTI Project Issues Tracker

POWERED BY :

- Rich Domain Experience
- SAP S/4HANA and SAP cloud platform innovations


Enterprise Challenges in Project Issue Tracking





Vadodra toll-booth : Built by L&T



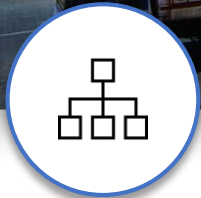
Issues are reported and recorded in unstructured manner

 Phone calls

 E-mails

 Meetings

 Reports



Lack of structured database integrated with the project structure and plan.



Issues captured in enterprise systems by indirect participants, resulting in information delays



No clear visibility of issues across the projects, their cumulative impact on costs & timeline




Dependence on manual tracking for information on issue status, implications to change requests




Lags in reporting, tracking and unstructured processing compromises pro-active risk management

How we Solve – Issue Tracking App

 **Integrated mobile Apps**

 Empowering construction site personnel

 Enabling real time updates of issues and risks enabling pre-emptive interventions well in time to reduce time and cost over-runs



Pre-requisite

- Back-end SAP ERP (ECC or S/4HANA)
- SAP cloud platform



Solution Construct

- SAP cloud platform
- SAP Fiori/UI5
- SAP S/4HANA Core



KPIs Impacted

- Schedule performance
- Cost performance
- Responsiveness in project execution

Solution Overview



Project Issue Tracking App.



Types of issues



Severity, status & resolution date



Time and cost impact of the issues



Project issue tracking app



Real time update of enterprise solution - CPM ICM



Capture of issue related documents & pictures



Alerts in 'Project Management Cockpit'

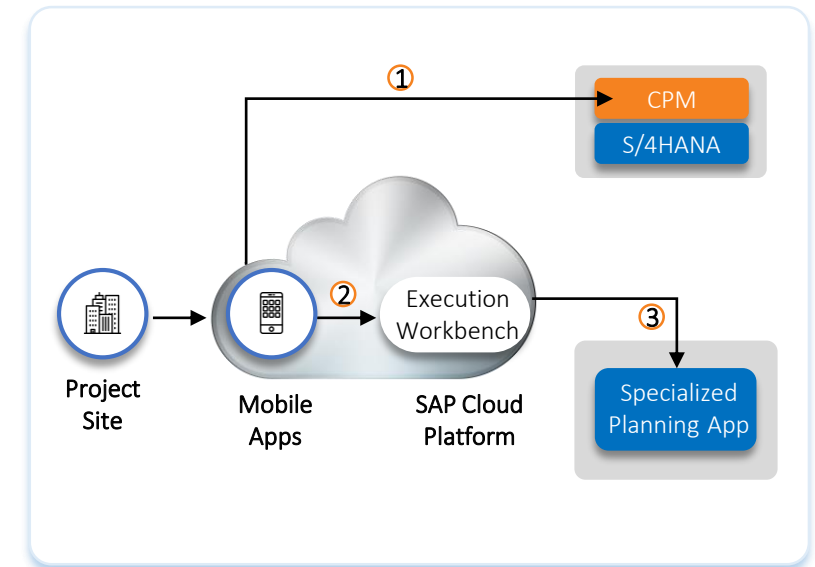


Integration with backend enterprise systems



Accessed by mobile, other hand-held devices and desktop too.

Real-time Insights



How LTI Issue Tracking App Amplifies Outcomes



In-depth visibility to project issues, issue types, severity, quantified impact and status.



Real-time & automated data capture, linking to project structure to ensure high quality information



Improved speed of issue responses enhancing agility in project execution



Pro-active risk identification and mitigation as stakeholders get quality information in real-time

230 KV double circuit transmission line at Abu Ali, Saudi Arabia. L&T is an industry leader in turnkey construction of power transmission and distribution systems in India and the Middle East.

LTI Project Progress Tracker

On EPC basis, L&T undertook the 375 MW single-shaft combined cycle power plant project for Gujarat State Electricity Corporation Limited at Dhuvaran.

POWERED BY :

- Rich domain experience
- SAP S/4HANA and SAP cloud platform innovations

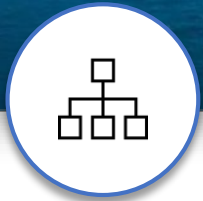
Enterprise Challenges in Project Progress Tracking

Bassein Development
Project for ONGC.



Fragmented Process

- Isolated trackers
- Non-standard & unstructured inputs



Significant manual efforts to collect, process and consolidate progress information



Lack of data integrity and accuracy



Significant lag between work occurrence and its reflection in progress reporting




Field-level insights as regards progress forecasts, progress support documents not readily available for monitoring & expediting




Progress reporting becomes record generation process rather than tool for proactive project management

How we Solve – Progress Tracking App

 **Integrated mobile apps**

 Empowering construction site personnel

 Enabling seamless integration of Site / Yard transactions with executive-level project tracking



Pre-requisite

- Back-end SAP ERP (ECC or S/4HANA)
- SAP cloud platform



Solution Construct

- SAP cloud platform
- SAP Fiori/UI5
- SAP S/4HANA core
- Connector with Oracle Primavera (Quantity & schedule updates)



KPIs Impacted

- Agility & responsiveness in execution
- Integrity of deliverables
- Schedule performance

Solution Overview



Project progress tracking App.



Work quantities



% Completion – actual and forecast dates



Execution documents



Real Time Progress Updates



Instantaneous progress updates based on first hand observations & insights



Objective & Standardized feed for progress measurement, Look ahead / Catch-up plans and pre-emptive actions



Integration with planning & scheduling application

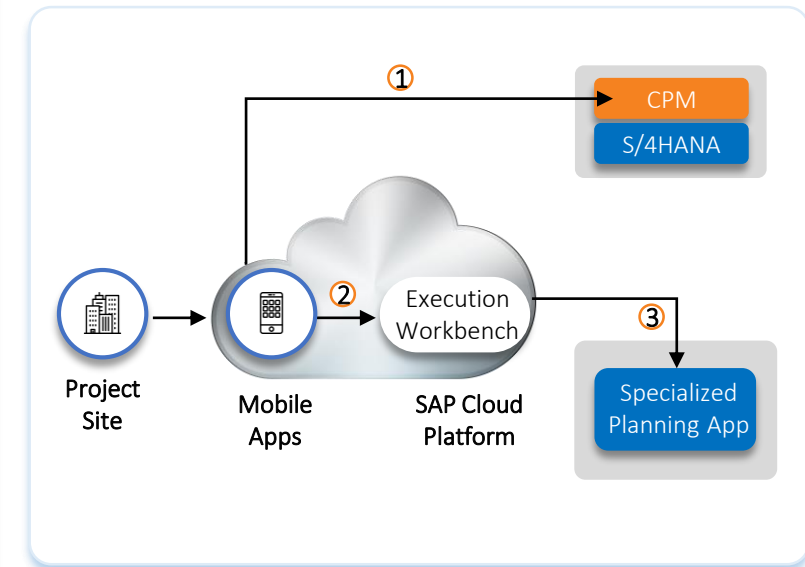


Automatic updates with backend enterprise systems



Accessed by mobile, other hand-held devices and desktop too.

Real-time Insights



How LTI Progress Tracking App Amplifies Outcomes



Real-time & automated data capture, linking to project structure to ensure high quality information



In-depth visibility into granular work outcomes with consistent progress tracking framework applicable for all project tasks



Enhanced agility in field execution with faster data *Plan-Do-Measure-Check* data flows



Superior quality of operational & project management decisions with high integrity progress data availability without any lag

First supercritical coal-fired power project (full EPC) by L&T - 2x700 MW supercritical thermal power plant for Nabha Power Ltd at Rajpura, Punjab.

L&T has manufactured critical equipment like turbine-generators, boilers, ESPs and axial fans, among other systems, for supercritical power plants across India.



Project Paychain

Seawoods Grand Central, Navi Mumbai – one of India's largest transit-oriented development projects. Complexes like this add comfort and convenience to the urban lifestyle

POWERED BY :

- Rich Domain Experience
- SAP S/4HANA and SAP cloud platform innovations

Enterprise Challenges in Contract Payment Processing



Extensive manual reconciliation or Vendor / Sub-contractor invoices and contractor payment applications



Vulnerability to data errors, extensive reviews and iterations involved before payment finalization



Lag in work execution and payments received affects working capital management and profitability

Pimpalgaon Nashik Gonde Tollway Limited (PNGTL) – an SPV with 48 % shareholding of L&T IDPL and 26% shareholding of L&T, has executed the six lane, 60 km stretch connecting Pimpalgaon–Nashik–Gonde section of NH-3, in Maharashtra on DBFOT basis.

How we Solve - Project Paychain



Pre-requisites

(Order & procurement system – e.g. SAP S/4HANA,)



Solution Construct

(SAP S/4HANA, SAP cloud platform)



KPIs Impacted

(Project cashflows, profitability, payment application & invoice accuracy and processing time)

Solution Overview



Payment Applications

Create and manage payment applications from start-to-finish, based on project WBS progress, workflows, holdbacks, etc.



Compliance Document Management .

Generation and storage of lien wavers, insurance certificates, payment application templates.



Billing Back-up Document Management .

Amalgamation of all back-up documents required for any given billing cycle.



Change Order Execution

Increases/decreases to prime contract, change estimation, documentation, client-specific templates, workflow, etc.



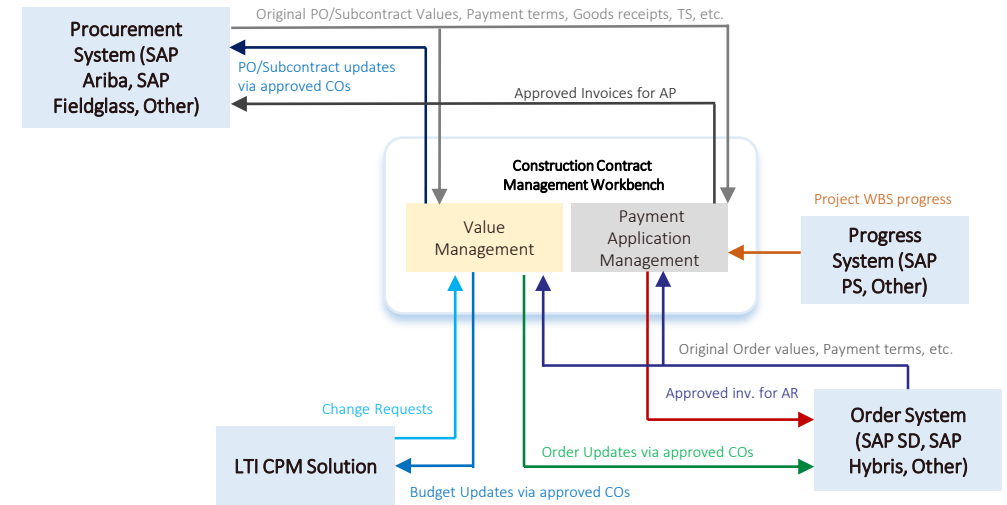
Subcontract Change Order Execution

Increases/decreases to subcontracts, quote collection, templates, workflow, etc.

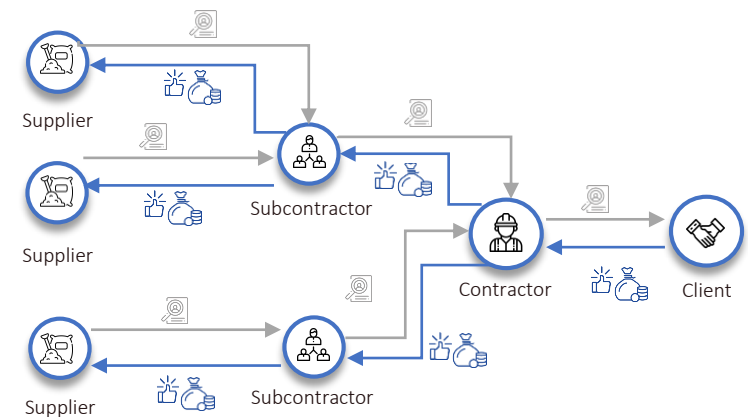


Construction Specific Setup

Set up holdback terms, approvers and reviewers for approval cycles.



Improved Cashflow



Benefits to Payment Application Processing

L&T Hydrocarbon Engineering, a wholly-owned subsidiary of Larsen & Toubro Limited (L&T), serves the Oil and Gas sector around the world.



Strong data backbone laid down to link contractor payment applications with sub-contractor & vendor payment applications—enforcing back-to-back arrangements



With user-friendly linking of payment applications, supporting document templates, workflow-based transacting and enhanced automation delivers efficient payment application processing



Rich industry specific functionality and intuitive UI reduces effort in payment application processing



Deep insights into payment application processing and invoicing makes problem areas quickly visible, enabling precise interventions



Improvements in cashflows and profitability



Project Management Cockpit

For FIFA 2022, L&T is building the Al Rayyan Stadium in Qatar, using environmentally-friendly building materials and practices. L&T has been associated with several prominent stadiums in India and abroad.

POWERED BY :

- Rich Domain Experience
- SAP S/4HANA and SAP cloud platform innovations

Enterprise Challenges in Project Tracking and Performance Reporting



Extensive manual processing of data from manifold applications and worksheets – resulting in Reports becoming 'Records of Dated Information'



Lower quality of data going into decision making due to issues such as loss of integrity, incomplete data, inaccuracies, time lag



Little capability for insight led proactive actions, risk management and predicting performance

181 MLD Water Treatment Plant for Vellore Water Supply Scheme.

POWERED BY :

- Rich Domain Experience
- SAP S/4HANA and SAP Cloud Platform Innovations

How We Solve - Project Management Cockpit



Pre-requisites

(ERP e.g. SAP S/4HANA or ECC, Financial data, planning & execution data, SAP BI/BO or SAC - planned)



Solution Construct

(SAP S/4HANA, SAP Cloud Platform, Data extraction from SAP, Primavera P6, and LTI SCP extension – Execution Workbench)



KPIs Impacted

(Project cost performance, schedule performance, execution agility, risk management)

Solution Overview



Financial Insights

Project Planned costs & budgets, actual costs, invoicing, revenues, cashflows extracted from SAP CPM workspace analytics and LTI forecast apps
Earned Value 'S' curve, EAC



Physical Progress Insights

Execution Alerts, Issues & Risks, Work Quantities, POC, Physical progress 'S' curve, Critical & Delayed activities and milestones, Deliverables



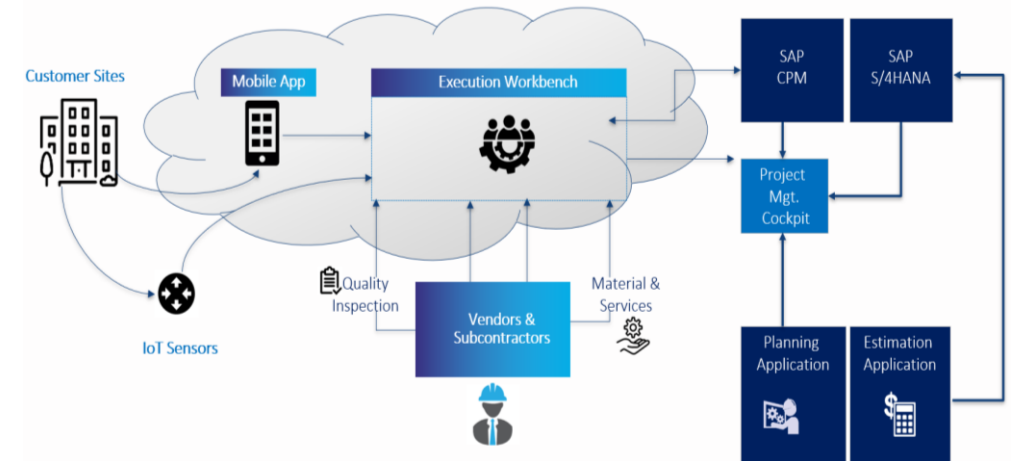
Operational performance insights

Project workforce and equipment performance & productivity, sub-contractor outputs, look-ahead checklists



Automatic Roll-ups with End-to-End Data Backbone

Automatic roll-ups enabled by data backbone comprising mobile apps, SCP extensions such as 'Execution Workbench', extended digital core comprising S/4HANA & CPM and specialized applications such as P6



How we Solve - Project Management Cockpit

Solution Overview



Financial Insights

(SAP S/4HANA)



Physical Progress Insights

(SAP S/4HANA, Primavera P6)



Order System

(SAP SD, SAP cloud for customer, other)



Progress System

(SAP PS, other)



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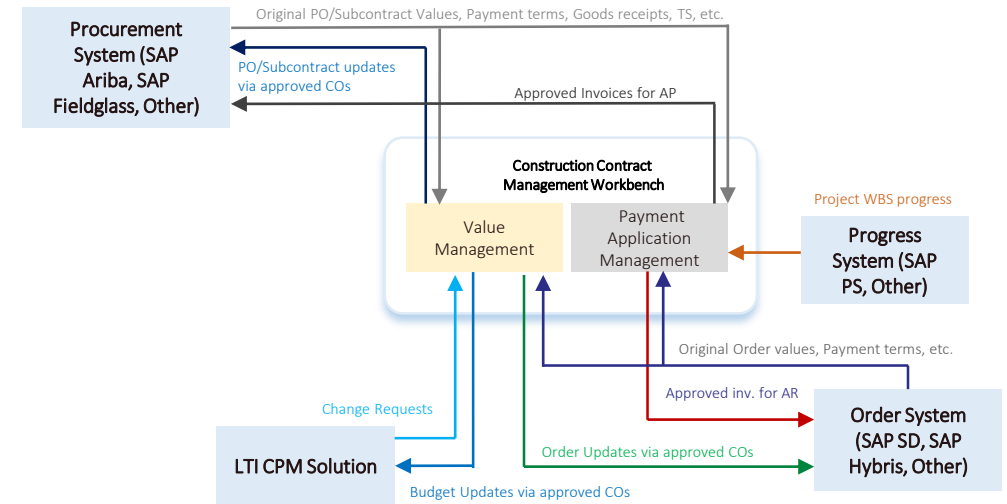
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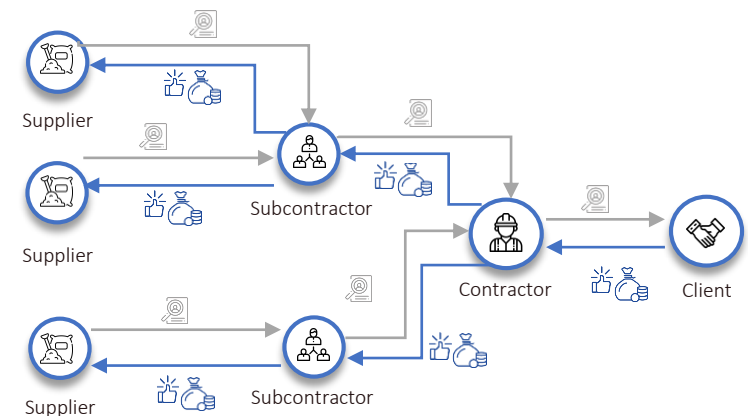


Construction Specific Setup

Set up holdback terms, approvers and reviewers for approval cycles.



Improved Cashflow



How LTI Project Management Cockpit Amplifies Outcomes



Project performance data from multiple applications extracted and consolidated with sound business logic - gives 360° insights into project performance



Significant portion of physical progress reporting can be 'Real Time' - enhancing speed of responses and agility in project execution



KPI driven reporting provides 'Best Practice' based template for project performance tracking. Rich and intuitive UI enables precise and quick insights into performance details



With deeper & quicker insights into project performance, project management team can take better decisions to mitigate risks and improve project outcomes

L&T builds a wide range of residential projects across the country – from elite towers to mass-housing complexes.

